UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,837	04/15/2004	Jeffrey A. Gohman	IFC 374	9448

50488 7590 02/15/2006

ALLEMAN HALL MCCOY RUSSELL & TUTTLE LLP
806 SW BROADWAY
SUITE 600
PORTLAND, OR 97205-3335

EXAMINER	
SEVER, ANDREW T	

ART UNIT	PAPER NUMBER
2851	

DATE MAILED: 02/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/825,837	GOHMAN, JEFFREY A.	
	Examiner	Art Unit	
	Andrew T. Sever	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 November 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15 and 21-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15 and 21-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-6, 8, 9, and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwa et al. (US 6,624,952 as cited in the previous office action) in view of Tanide et al. (US 5,500,747.)

Kuwa teaches in figure 4 an apparatus for projection display, the apparatus comprising:

An image generation device (PA) configured to generate an image;

A wide angle lens system (GrR and GrF) having an optical axis configured to receive the image and project the image along an optical path for display above the apparatus; and

Direction changing optics (PR) configured to fold the optical path such that the optical path changes direction from a first direction to a second direction, the image generation device is positioned below the optical axis of the wide angle lens system (the optical axis is that of GrF since it faces a different direction and is off axis of that of PA;

the image generation device is clearly positioned below the optical axis of the wide angle lens system).

Kuwa does not teach the projection display device being used in a front projection system and that it utilizes a wide angle lens that projects the image at a field angle of at least 100 degrees. With regards to the later, Kuwa specifically teaches in column 8, line 57 through column 90 line 23 that in general a field angle (angle of view) should be between 48 and 60 degrees as anything larger then 60 degrees would result in a substantial increase in cost and assembly time, however Tanide teaches that there are some circumstances involving front projection where such a field angle is worth the added costs and difficulty. Tanide teaches in column 2 lines 16-63 that in industrial projection uses, a projector with a wide angle lens allows a user to be free from a sense of oppression or unpleasant feelings in the presence of a projector body and that such a projector allows for projection on extremely large projection screens, including curved ones, while allowing for some portability of the projection/screen components. Column 4 line 46 through column 5 line 7 of Tanide, teaches that by utilizing a wide angle lens having a field angle of 120 degrees or more, a viewer can obtain a feeling image reality at a short distance. Given all the advantages given by Tanide for using a wide-angle lens having a field angle of 100 degrees or more in industrial/entertainment applications, it would have been obvious to one of ordinary skill in the art when utilizing the projection system of Kuwa for an industrial/entertainment application to use the lens of Tanide.

With regards to front projection, it is well known in the art that the projectors of rear and front projection systems are interchangeable (see column 3 lines 62-67 of Tadic-Galeb et al. (US 6,473,236) for example, and also see *In re Japikse* 86 USPQ 70 (CCPA 1950), which teaches that a mere rearrangement of parts (in this case from behind the screen to in front of it) has been found to be obvious.) Accordingly since Tanide teaches the use of large screen where rear projection is not necessarily practical, it would have been obvious to make the projection system of Kuwa in view of Tanide a front projection system.

With regards to applicant's claim 2:

GrR is a relay lens stage while GrF is a wide-angle lens stage.

With regards to applicant's claim 3:

See column 6 lines 36-59 of Kuwa which teach that the pre-distortion system is the first stage (GrR), which includes the relay lenses.

With regards to applicant's claim 4:

Although the optical axis of Kuwa is bent between the wide angle lens system and the relay lens system, essentially the lens systems are the same optical axis in a the same way that applicant teaches in paragraph 28 of the current specification that lenses 315 and 345 are aligned in figure 3 of applicant's drawings.

With regards to applicant's claim 6:

As can be seen in figure 4 of Kuwa, if the first direction is considered to be toward the front of the projection device, the second which is at an angle greater then 90 is toward a rear of the projection display device (the vector of the light beam includes components that are the opposite of components of the vector of the first direction.)

With regards to applicant's claim 8:

Clearly the two planes of Kuwa are not the same and at least part of the first plane is above the second plane.

With regards to applicant's claims 5, 9, 11, and 12:

See above, the second direction and first direction of Kuwa meet the claimed limitation of being substantially opposite (wherein substantially opposite is being held to be any angle between 270 and 90 degrees, at least part of the vector is substantially opposite.)

With regards to applicant's claim 13:

See column 1 lines 9-14 that teach the projection optical system of Kuwa is part of a projection device.

With regards to applicant's claim 14:

See above with regards to applicant's claim 6.

With regards to applicant's claim 15:

This is the purpose of the wide angle lens of Tanide; to be able to place the projector closer to a large view surface minimizing the throw distance while avoiding make a user uncomfortable or making the image distorted.

3. Claims 7, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwa in view of Tanide as applied to claims 1-6, 8, 9, and 11-15 above, and further in view of Cotton et al. (US 6,485,145 as cited in previous office actions.)

As described in more detail above Kuwa in view of Tanide teaches a projection display device that among other things includes a wide angle lens having two stages wherein the angle between the first and second stage forms an angle of 90 degrees or more, however Kuwa in view of Tanide does not teach the use of fold mirrors, especially two of them. Cotton teaches in figure 2 two fold mirrors (32) for redirecting the light substantially 180 degrees from the projection device. Cotton teaches in column 3 lines 50-63 that such a display system allows for an ultra thin panel compared to a lesser angle as taught in the figures of Kuwa. Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to use two fold mirrors as taught by Cotton to redirect the light path at an angle of 180 degrees in the wide angle projection system of Kuwa in view of Tanide, as this allows for a smaller display.

4. Claims 21-25 rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwa et al. in view of Booth et al. (US 5,642,927) and Tanide et al.

Kuwa teaches in figure 4 a projection system for displaying an image on a display surface, the display surface forming a display plane, the projection system comprising:

A body (obvious but not specifically shown, also see figure 5 which shows the entire optical system mounted within a large housing;

A lens system disposed in the body (all of figure 4), wherein the lens system includes a relay lens stage (GrR), a wide angle lens stage (GrF), and direction changing optics (PR) interposed in the relay lens stage and the wide angle lens stage to form an optical path, where the direction changing optics change the optical path direction from a first direction towards a second direction.

Kuwa does not teach that the direction changing optics change the optical path direction from a first direction towards a front portion of the projector's body to a second direction towards the display surface which is disposed substantially adjacent the rear portion of the projection system. Such a system is taught by Booth, which teaches in figure 2 a projector that projects towards a display surface (72) disposed substantially adjacent a rear portion of the body of the projector. Booth teaches in column 2 lines 43-67 that this structure allows for a more compact projector. Since it is desirous to make a projector as small as possible, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include Booth's direction changing design of the projector of Kuwa.

Kuwa in view of Booth does not teach the projection display device being used in a front projection system and that it utilizes a wide angle lens that projects the image at a field angle of at least 100 degrees. With regards to the later, Kuwa specifically teaches in column 8, line 57 through column 90 line 23 that in general a field angle (angle of view) should be between 48 and 60 degrees as anything larger then 60 degrees would result in a substantial increase in cost and assembly time, however Tanide teaches that there are some circumstances involving front projection where such a field angle is worth the added costs and difficulty. Tanide teaches in column 2 lines 16-63 that in industrial projection uses, a projector with a wide angle lens allows a user to be free from a sense of oppression or unpleasant feelings in the presence of a projector body and that such a projector allows for projection on extremely large projection screens including curved ones, while allowing for some portability of the projection/screen components. Column 4 line 46 through column 5 line 7 of Tanide, teaches that by utilizing a wide angle lens having a field angle of 120 degrees or more, a viewer can obtain a feeling image reality at a short distance. Given all the advantages given by Tanide for using a wide-angle lens having a field angle of 100 degrees or more in industrial/entertainment applications, it would have been obvious to one of ordinary skill in the art when utilizing the projection system of Kuwa in view of Booth for an industrial/entertainment application to use the lens of Tanide.

With regards to front projection, it is well known in the art that the projectors of rear and front projection systems are interchangeable (see column 3 lines 62-67 of Tadic-Galeb et

al. (US 6,473,236) for example, and also see *In re Japikse* 86 USPQ 70 (CCPA 1950), which teaches that a mere rearrangement of parts (in this case from behind the screen to in front of it) has been found to be obvious.) Accordingly since Tanide teaches the use of large screen where rear projection is not necessarily practical, it would have been obvious to make the projection system of Kuwa in view of Booth and Tanide a front projection system.

With regards to applicant's claim 22:

The stage that proves the filed angle greater than 100 degrees is the wide-angle lens stage.

With regards to applicant's claim 23:

It is clear that when Kuwa is used in a system such as Booth the relay lens stage would be disposed on a plane below the wide angle lens stage (Kuwa's direction changing optics would be equivalent to part 70 of Booth.)

With regards to applicant's claim 24 and 25:

As is shown in Booth the DMD is offset from the projection system, further the exact disposition of the lens is adjustable which would allow for the offset to be either in an up position or down position depending on the shape and form of the aberration being corrected for by the operator of the projector.

Double Patenting

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1-14 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 16 and 15 of copending Application No. 10754093 in view of Cotton et al. (US 6,485,145).

Claims 3, 16, and 17 of the '093 claim an apparatus for a projection display with an inherent image generation device (in order to have an image something must generate it) a wide angle lens system, a relay lens system, and a direction changing optics, however those direction changing optics are not claimed in '093 application. As taught by Cotton in figure 2 a reflection based wide-angle projection system (32) can be made to be redirected by an angle of 180 degrees, with two fold mirrors (a redirection device). Cotton teaches in column 3 lines 50-63 that such a display system allows for an ultra thin panel. Accordingly it would have been obvious to one of ordinary skill in the art to use the fold mirrors of Cotton as a redirection device in the '093 application.

This is a provisional obviousness-type double patenting rejection.

7. Claims 21-25 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 16 and 15 of copending Application No. 10754093 in view of Booth et al. (US 5,642,927.)

Claims 3, 16, and 17 of the '093 claim an apparatus for a projection display with an inherent image generation device (in order to have an image something must generate it) a wide angle lens system, a relay lens system, and a direction changing optics, however those direction changing optics are not specifically claimed in '093 application.

The '093 application does not claim that the direction changing optics change the optical path direction from a first direction towards a front portion of the projector's body to a second direction towards the display surface which is disposed substantially adjacent the rear portion of the projection system. Such a system is taught by Booth, which teaches in figure 2 a projector that projects towards a display surface (72) disposed substantially adjacent a rear portion of the body of the projector. Booth teaches in column 2 lines 43-67 that this structure allows for a more compact projector. Since it is desirous to make a projector as small as possible, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include Booth's direction changing design of the projector claimed in the claims of the '093 application.

Response to Arguments

8. Applicant's arguments with respect to claim1-15 and 21-25 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's argument addressed mainly the new language and accordingly is moot due to the new grounds of rejection, however the argument addressing the Cotton reference will be discussed. Applicant argues that Cotton's system is directed to compensating for keystone distortion, while this may be true, it is irrelevant since Kuwa teaches the compensation for wide angle distortion, both distortion are capable of being compensated for by the same projector and therefore the combination is obvious. Accordingly the rejections have been made to reflect applicants new language and made final.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Sever whose telephone number is 571-272-2128. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS

William Perkey
Primary Examiner